## ESSEX REGULATOR – CHRYSLER CORP.

### DESCRIPTION

Regulates electrical system voltage by limiting output voltage generated by alternator. Voltage regulator is connected in field circuit between battery and field terminal of alternator. Unit is a temperature compensated, vibrating type voltage regulator with two sets of contacts using a common armature. Upper and lower stationary contacts are mounted on a bracket which is attached to, but insulated from regulator frame. The lower contact mounted on armature is connected to "IGN" terminal. The upper contact, mounted on armature but insulated from it, is connected to ground by a flexible wire. The stationary contacts are connected to "FLD" terminal by a fusible link. Regulator operates on either upper or lower contacts depending on load and battery requirements.

### TESTING

#### LOWER CONTACTS

1) With engine at normal operating temperature and ignition switch off, disconnect wire at "IGN" terminal of regulator and install on-off switch and wire in series with voltage regulator and wire disconnected from regulator (see illustration). Connect positive lead of a voltmeter to on-off switch and negative lead of voltmeter to a good ground.

2) Disconnect lead at alternator "BAT" terminal and connect a 0-50 ampere scale D.C. ammeter in series between terminal and disconnected wire. *CAUTION – If field circuit is grounded on "FLD" terminal of regulator when removing or installing lead while ignition is on, fuse wire in regulator circuit will be blown and regulator damaged.*

3) Connect carbon pile between battery posts, then start and operate engine at 1250 RPM. Adjust carbon pile to obtain a 15 ampere output on ammeter. No current reading on ammeter will indicate a low set regulator or a blown fuse wire between upper stationary contact and "IGN" terminal. Correct as necessary, then operate engine for 15 minutes to ensure system temperature is normalized.

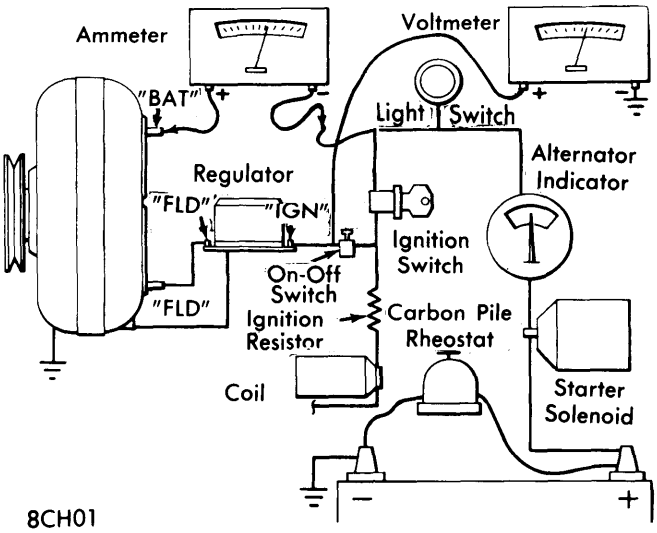
4) With engine operating at 1250 RPM and carbon pile adjusted to maintain 15 amperes, measure temperature at regulator by holding a thermometer ¼" from regulator cover. Cycle voltage regulator circuit by momentarily opening and closing the on-off switch several times. Voltmeter will now indicate setting of lower contacts. If regulator operates within specifications, proceed to test upper contacts. If reading is not within specifications, adjust voltage setting as outlined. See *Lower Contact Voltage Setting*.

**Specifications**

| Ambient Temperature | Voltage Range |
|---|---|
| 47°F | 13.6-14.6 |
| 70°F | 13.5-14.5 |
| 93°F | 13.4-14.4 |
| 117°F | 13.3-14.3 |
| 140°F | 13.2-14.2 |
| 163°F | 13.1-14.1 |

#### UPPER CONTACTS

*CAUTION – Be sure negative post of battery is always connected to ground. Incorrect battery polarity may result in wiring harness damage and may damage alternator rectifiers. Do not ground alternator field circuit, as this may damage regulator.*




**VOLTAGE REGULATOR TEST CONNECTIONS**

1) Increase engine speed to 2200 RPM. Adjust carbon pile to decrease current load to seven amperes and measure temperature at regulator cover to ensure it is the same as for lower contacts test. Cycle regulator circuit by momentarily opening and closing the on-off switch several times.

2) Voltmeter will now indicate setting of upper contacts. Voltage increase should be .2-.7 volts above that obtained with regulator operating on lower contacts. If voltage increase is not within limits, air gap and/or contact clearance is out of specification limits and must be adjusted. See *Adjustments*.

### ADJUSTMENT

#### LOWER CONTACT VOLTAGE SETTING

Adjust lower contact voltage setting as necessary by turning adjustment screw clockwise to increase voltage or counterclockwise to decrease voltage. *CAUTION – Do not remove cover for voltage adjustment. A stop in cover will limit adjustment range and adjustment screw should not be forced beyond this point.*

#### UPPER CONTACT VOLTAGE SETTING

Remove regulator cover and measure upper contact point gap. Gap must be .014±.004". Adjust upper contact gap as necessary by bending armature upper contact bracket. *NOTE – Contacts must be in alignment.* If upper contact gap is correct and voltage regulator setting is still outside .2-.7 volt increase, adjust air gap.

#### AIR GAP ADJUSTMENT

If voltage regulator setting is .7 volts or higher, reduce air gap by bending down the fixed contact bracket. If the difference is below .2 volt, increase air gap by bending fixed contact bracket up. To check air gap measurement proceed as follows:

1) Connect a small dry cell test lamp in series with "IGN" and "FLD" terminal of voltage regulator. Insert a .032" wire gauge between regulator armature and core of voltage coil next to stop pin on armature. Press down on armature until armature contacts wire gauge. Lower contacts should just open and test lamp should be dim.

2) With air gap adjusted as in step 1), a .042" wire gauge should not fit between armature and voltage core. Before installing cover screws, make sure rubber grommet is centered over voltage adjustment screw.